



# **JUST E6021**

## **Product Specifications**

### **V1.0**

**Shenzhen Justtide Tech Co., Ltd.**

**March 1,2012**

---

#### **CONFIDENTIAL**

Unpublished property of Shenzhen JustTide Technology Co Ltd. © JustTide 2006  
This document must not be copied or distributed without JustTide's written permission.  
Tel: +86 755 8615 3302, Fax: +86 755 8615 3346  
[www.justtide.com](http://www.justtide.com)

Page 1

### Revision History

Revision	Issue Date	Comments
V1.0	Mar 1, 2012	Initial Release

---

**CONFIDENTIAL**

# Table of Contents

1 Physical features.....	4
1.1. Size and weight.....	4
1.2. Appearance design.....	4
1.3. Processor and Memory.....	5
2 Electrical interface.....	5
2.1 USB.....	5
2.2 Expansion port for FDK.....	6
3 Keypad features.....	6
3.1 Security Performance.....	6
3.2 Input/output characteristics of serial port.....	7
3.3 Environmental characteristics and certifications.....	7
3.4 Keystroke performance.....	7
4 Logical features.....	8
4.1 Support functions.....	8
4.2 Encryption performance.....	9
4.3 LEDs indication modes.....	9
5 EPP assembling.....	10
5.1 Interface illustration.....	10
5.2 Connection illustration for FDK interface.....	11
5.3 Connecting instruction.....	11

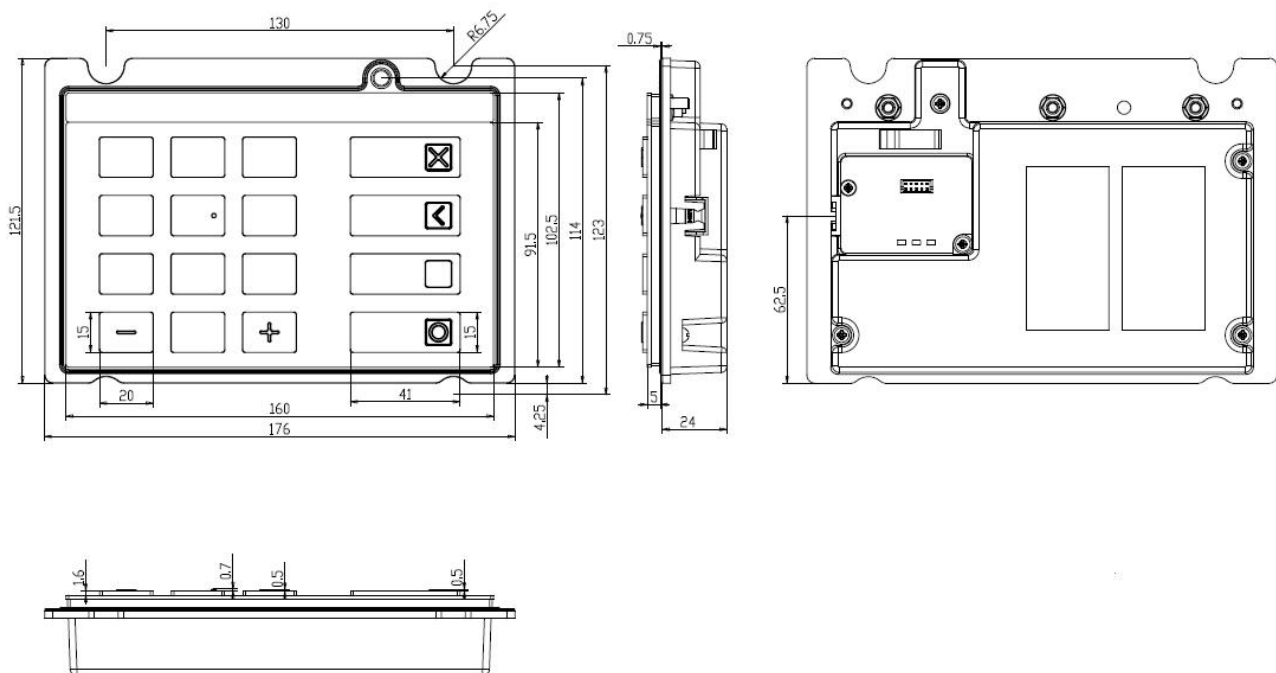
---

**CONFIDENTIAL**

# 1 Physical features

## 1.1. Size and weight

- Dimensions
  - L×W×H:176 mm×132mm×31mm
- Weight
  - 1kg
- JUST E6021 series drawing:



## 1.2. Appearance design

- Made of high quality stainless steel with laser
- GPO(Glass Pearl Blasted Surface) on key panel's surface
- Easy to use for handicapped
- 'X', 'O' and 'I' are color embossed signs for the visually-impaired (optional)
- Button '5' is designed with one stud dot for the visually-impaired

### CONFIDENTIAL

## 1.3. Processor and Memory

- Processor type: DS5250-1N5@22.1184MHz
- Code Space Size: 256KB
- Data Space Size: 256KB

## 2 Electrical interface

### 2.1 USB

JUST E6021 series adopt standard “B” receptacle for USB interface with connector from FOXCONN (Product code: UC0112C-3JK1-4F). The EPP is a bus-powered Full-Speed USB2.0-compliant device. Maximum current consumption requirement of the EPP is 500mA using this interface.

Pin definition of USB interface as follow:

Connector Pin No.	Function
1	VBUS
2	D-
3	D+
4	GND

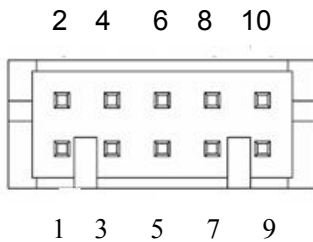
---

### CONFIDENTIAL

## 2.2 Expansion port for FDK

An 8-key function keypad can be connected through this expansion port. The connector used in the EPP is from NS-TECH (Product code: 2005R-10). The associated interface cable for this port is shipped with the EPP and it can be custom designed.

Pin definition of FDK interface as follow:



Connector Pin No.	Function	Connector Pin No.	Function
1	KEY1	2	KEY2
3	KEY3	4	KEY4
5	KEY5	6	KEY6
7	KEY7	8	KEY8
9	GND	10	GND

## 3 Keypad features

### 3.1 Security Performance

- Tamper Resistant
- Foreign matters prevention from the back cover
- Low and high temperature attack detect
- Low and high voltage attack detect
- EPP removal detect
- SPA and DPA attacks detect
- Kuhn attack detect
- Secure firmware download & upgrade
- Prevent attacks associated with EMI radiation

### CONFIDENTIAL

## 3.2 Input/output characteristics of serial port

Baud rate at 57600, 8-bit data length, 1 stop bit, no parity bit.

## 3.3 Environmental characteristics and certifications

- Operation temperature range: -25°C~+65°C
- Storage temperature range: -35°C~+75°C
- Environment humidity: ≤98% r.h, non-condensation
- Guaranteed MTBF: 100,000 hours minimum
- Data retention lifetime: ≥5 years without external power supply attached
- Water spray/dust protection: IP65 (Front only)
- EMI/EMP: EN55022 B for Emission  
EN55024 for Immunity  
IEC61000-4-2 Level 4 for ESD (Contact: ±8KV; Air: ±15KV)
- Certifications: PCI3.x  
CE  
EN60950  
RoHS

## 3.4 Keystroke performance

- Removal switches operating force: 2.5N ±0.4N
- Numerical keys actuating force: 3.5N ±0.7N (Center)
- Function keys actuating force: 5.0N ±1.0N (Center)
- Lifespan of keys: 2,000,000 cycles minimum at 5N force applied

---

### CONFIDENTIAL

## 4 Logical features

### 4.1 Support functions

EPP supports 3DES encryption / decryption algorithms, and the following functions:

- Clear entry or user entry
- PIN entry
- Secure Entry
- Password Entry
- Change password
- PIN encryption or PIN block calculation with following formats
  - ANSI X9.8
  - ISO 9564 format 0
  - ISO 9564 format 1
  - ECI2
  - ISO 9564 format 3
  - IBM3624
  - DIEBOLD
  - DIEBOLDCO
- User data encryption / decryption with following algorithms
  - Electronic Code Book (ECB)
  - Cipher Block Chaining (CBC)
  - Cipher Feed Back (CFB)
- Message Authentication Code (MAC) calculation using CBC algorithm
- Loading master keys from application or entered from keypad
- Loading session keys from application
- Loading session keys from application within an ANSI X9 TR-31 key block
- Remote Key Loading using Signatures

A 3DES key is 16 or 24 bytes. Any key slot can store an 16 or 24 byte key. This is decided when loading a key.

---

#### CONFIDENTIAL



## 4.2 Encryption performance

- 8 byte of data using 3DES encryption: 1.8ms
- Exponentiation time, modulo 1024 bits, exponent 3: 18.4ms
- Exponentiation time, modulo 1024 bits, exponent 1024: 570ms
- Exponentiation time, modulo 2048 bits, exponent 3: 36.4ms
- Exponentiation time, modulo 2048 bits, exponent 2048: 4s

True Random-Number Generator (RNG) is compliant with FIPS PUB 140-1

**Note:** The performance time specified in this section does not include communication time, token handling, rule checking and other overheads.

## 4.3 LEDs indication modes

3 LEDs are used to indicate what is EPP doing:

Status Light			Boot loader Exists	Firmware Exists	Description
Green	Yellow	Red			
ON	ON	ON	No	No	EPP is self-destructed
OFF	ON	ON	Yes	No	Firmware verification failed
OFF	FLASH	ON	Yes	Downloading	Downloading Firmware
ON	B	C	Yes	Yes	Firmware is working
FLASH	B	C	Yes	Yes	Data communication in process
A	ON	C	Yes	Yes	PIN Entry
A	B	FLASH	Yes	Yes	Battery low
A	FLASH	C	Yes	Yes	Being Removed

**Note:**

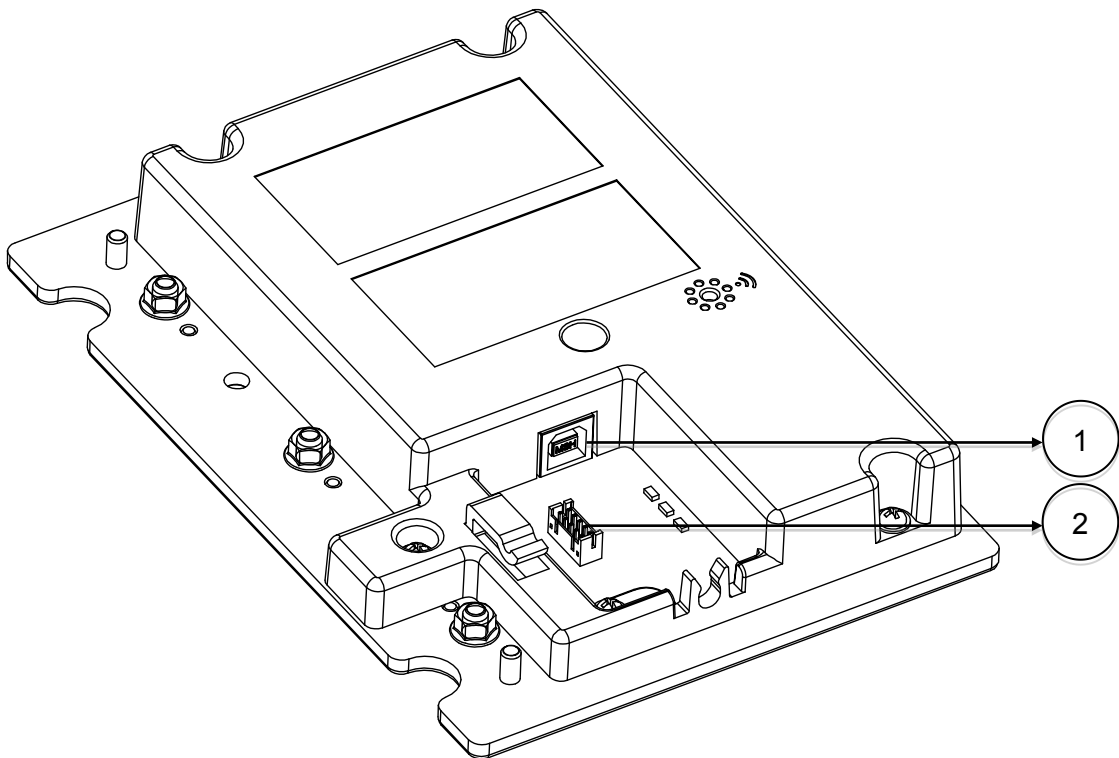
**A: On or Flash    B: On, Off or Flash    C: Flash or Off**

### CONFIDENTIAL

## 5 EPP assembling

EPP can be easily assembled using common tools.

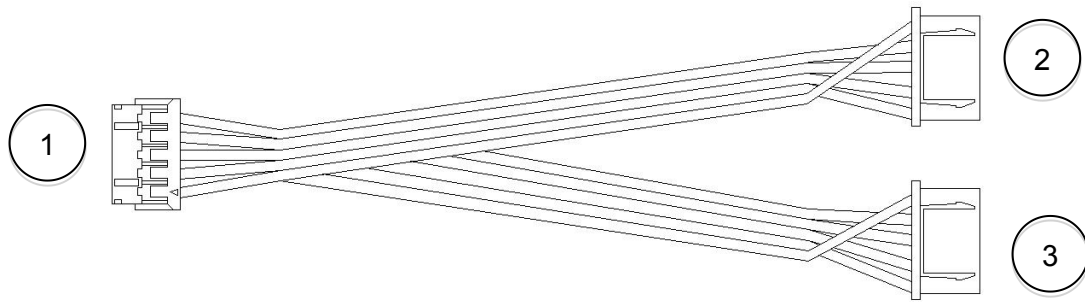
### 5.1 Interface illustration



1. USB Interface
2. FDK Interface (external function keypad interface)

### CONFIDENTIAL

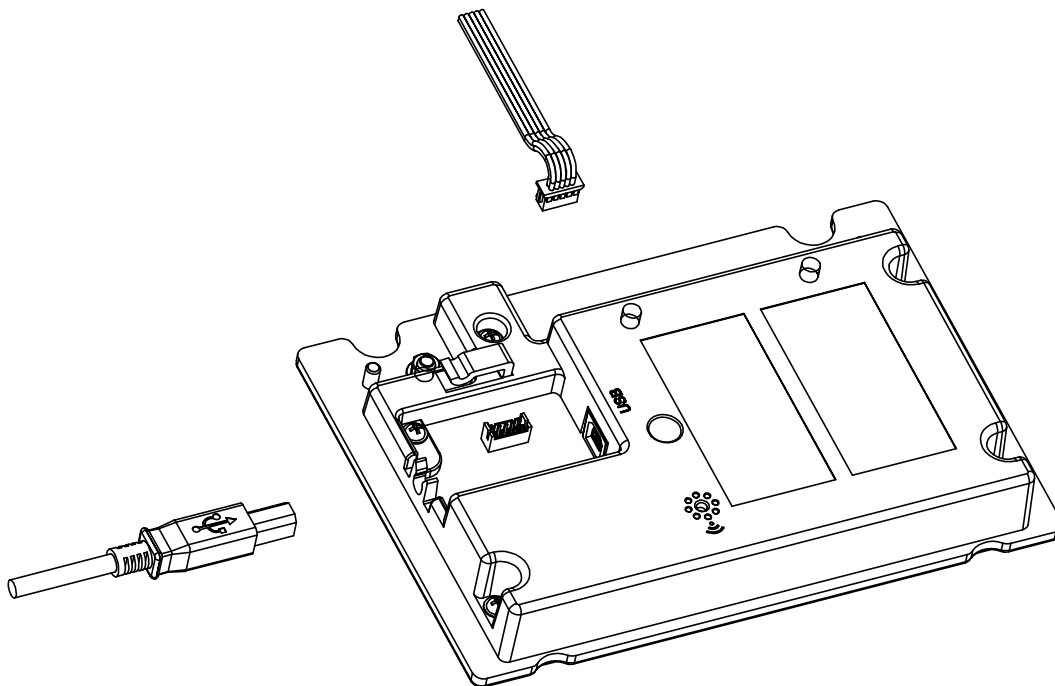
## 5.2 Connection illustration for FDK interface



1. Housing to EPP
2. Connector to Left Function Key Panel
3. Connector to Right Function Key Panel

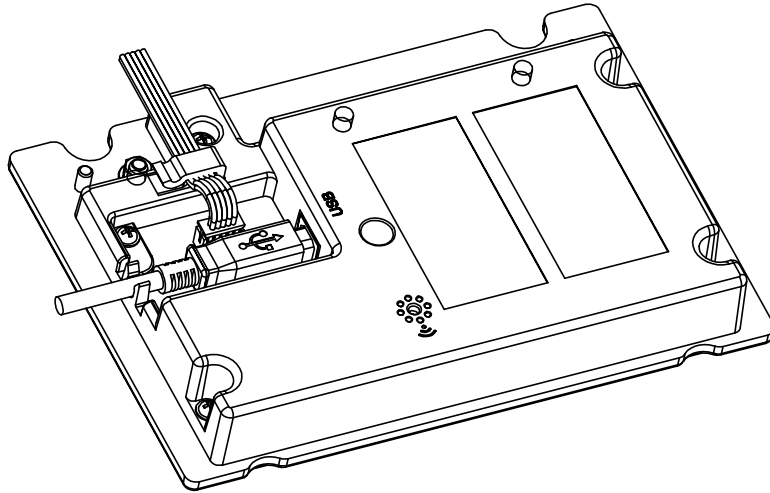
**Note:** that this is only a recommendation. Deviations are possible, subjected to the fulfillment of interface requirements of the EPP.

## 5.3 Connecting instruction



Plug cables into respective port

### CONFIDENTIAL



While assembling JUST E6021 onto ATM, user can refer to the illustrations above to install data cable, external functional keys and power supply.

---

**CONFIDENTIAL**